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A Bedouin family on the plains of Mesopotamia. What is their probable occupation?

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OBJECTIVES OF GEOGRAPHY INSTRUCTION*

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There is at present a wide spread movement for curriculum revision. Denver, Dayton, Louisville and Cincinnati are representative cities selected from a wide list where curriculum revision is in progress. The state of California has been granted eighteen thousand dollars from the Commonwealth Fund for the purpose of making a study of the curriculum in the elementary schools of that state. This study is preliminary to state wide curriculum revision. Teachers College of Columbia University is making a survey of current curricular practice with the professed intention of discovering "what is" and of determining thru research "what ought to be." Missouri is embarking upon a state wide movement of curriculum revision for which an appropriation of six thousand dollars has been made.

These are concrete evidences of a nation-wide movement toward curriculum revision. This movement probably dates from 1904, when Professor McMurry of Columbia University delivered an address before the National Education Association urging the elimination of nonessentials from the course of study. Since that time curriculum revision has been championed by a group of educators and in most instances an attempt is being made to revise in the light of scientific research. Specialists in educational theory and practice are attempting to find thru methods of research a scientific basis for educational practices.

THE FORMULATION OF EDUCATIONAL OBJECTIVES

The first movement toward revision is usually an attempt to formulate the broad objectives of education. Over and over again

*Presidential address delivered at the meeting of the National Council of Geography Teachers, December 29, 1924, Washington, D. C.

in the discussions preliminary to a revision of the course of study one hears the larger objectives of education set forth in such terms as sound health, vocational efficiency, good citizenship, wise use of leisure and stability of character.

The next attempt is to select the materials of instruction that will fit the pupil to meet these objectives. Experts in curriculum revision are working toward an evaluation of the elementary school subjects in terms of the larger objectives of education. One of the aims is to eliminate non-essentials. Missouri, for example, has formulated a series of guiding principles in making courses of study, the first of which reads "subject-matter should have some positive justification." Doctor Bagley, who is now engaged in a study of the elementary curriculum for the state of California, says that in the course of his study the problem of objectives of the various school subjects will have to be faced squarely. This movement for curriculum revision with its accompanying attempts to formulate definite objectives of the several school subjects and to devise systems for measuring the extent to which these objectives are being realized in classroom instruction is the most significant aspect of educational tendencies in America today.

Educators are divided in their opinions as to the formulation of objectives. One group maintains that specific objectives of the several subjects should be listed, while another group is satisfied to speak of specific objectives only in the light of the large and comprehensive functions of education.

There are those who maintain that the only effective way in which objectives may be set up in definite form as a product of organized experience is thru numerical processes. They argue that objectives of the most usuable sort are quantitative. Those who adhere to quantitative objectives would say that such qualitative standards as initiative, the ability to think, honesty or the golden rule were largely without merit because they were lacking in precision.

There is much to be said in favor of objectives being most useful when they are quantitatively expressed. In illustrating the value of quantitative objectives an educator said recently, "If merely upon my own experience as a teacher, I assert that eighth-grade pupils should be able to add, my statement is of little value, and if, even, I summon to my support the experience of many teachers to the same effect, I have still done little toward setting up

a useful standard. I have not indicated how accurately such children should be able to add, nor at what rate. Moreover, I have not specified the kind of quantities nor their size nor their number. Must a child be able to add fractions as well as whole numbers, denominate numbers as well as decimals? Should he be able to add two numbers or a column as tall as his tablet? The only satisfactory way to arrive at sufficiently definite standards of adding has been by assigning specific tasks to a great many pupils and recording their successes in performing them. From these records made in numerical form, we deduce, for example, the Courtis standard. Typical eighth-grade children can add in eight minutes with eighty-five percent accuracy, twelve examples each composed of nine three-place numbers.'"[1] This is definite enough to satisfy the most ardent advocate of quantitative objectives.

Now will this illustration from arithmetic hold in any of the aspects of geography? I think it will in "locational" geography. I think it quite possible to obtain quantitative objectives in this field of geography and objectives based not only upon experience, but upon organized experience. There is no inherent reason why we should not have a scale for locational geography just as we now have a scale for writing and spelling.

GEOGRAPHY—A SOCIAL STUDY

But locational geography is only one phase of our subject, and surely no one would maintain that it is the most important phase. Educators of today are speaking of the nature and function of geography in terms that would certainly be acceptable to this group of specialists. In educational literature one finds numerous references to the contributions that geography can make to the social studies, and emphasis is placed upon the need for recognizing the subject as a series of relationships which have grown out of social needs. In the fifteenth year book of the National Society for the Study of Education in connection with a discussion of the principles underlying the reorganization of the social sciences one finds geography included with history and civics under the head of social subjects. It is pointed out that the aim of these studies is to aid the pupil in interpreting his immediate social environment and in establishing standards of conduct with reference to civic institu-

[1]B. R. Buckingham, Standards in Education. Address delivered before the Ohio State Educational Conference, April 3, 1924

tions. Professor David Sneddon, Teachers College, Columbia University, in a recent book on "Sociological Determination of Objectives in Education" speaks of geography as a social science. At a meeting of the National Society for the Study of Education in Cleveland in February, 1923, a group of distinguished educators discussed the nature and content of social studies in our public schools. Their discussions are embodied in the twenty-second year book of that society. The discussions indicate quite clearly that such men as Dr. H. O. Rugg of the Lincoln School of Teachers College, New York City; Dean C. H. Judd of the University of Chicago, and Dr. Ernest Horn of the University of Iowa believe that geography has much to contribute to the program of social studies.

DIFFICULTY OF FORMULATING OBJECTIVES OF SOCIAL STUDIES

If geography is to be thought of as a social study then the objectives of a social education will be the objectives of geography. Can the objectives of social studies be definitely formulated? Let us assume that the ultimate goal of all social studies is the making of a good citizen. "A good citizen is one who can perform sufficiently well the fifty, five hundred, or five thousand things which the good citizen is called upon by his social situation to perform"; but who can say just what these things are and when they are efficiently performed? As yet we have no definite criteria by which we may measure the relative value of the different activities of an individual in the field of citizenship. Among skilled workmen there are certain specific requirements and abilities which might be tabulated and accepted as being what anyone skilled in that particular trade should be able to perform. For example, "the good plumber is the man who can perform skillfully the one hundred and sixty kinds of jobs which analysis shows the good plumber must perform in the course of his labor." We know what these jobs are. They can be written down in a list that would be accepted by all good plumbers. But in citizenship the nature of the activity that is to be done will vary as the experiences, views, interpretations, and outlook on life of the individuals vary. Consequently, a scientific analysis of the activities of a good citizen that might serve as a basis on which to formulate educational procedure seems impossible. No one can make a list of the things that a citizen should do that would be acceptable by all who regard themselves as good citizens.

Shall we assume that since there is no scientific analysis of the activities of a good citizen there can be no training for citizenship? Must citizenship training be postponed until we know the good citizen's exact functions? If so we must postpone all such training for this generation at least. But material and spiritual advancement have not resulted from postponing effort until science has indicated an exact method of procedure. Huxley has said that nine-tenths of the practical work of the world is guided by hypothesis.

Professor Bobbitt who is thoroly converted to the notion of listing specific objectives for the several subjects in the school curriculum admits frankly that "every textbook of citizenship training that we now have is built, not on facts as to the activities of the good citizen, but on the working hypothesis of the writer. Every course of study in this field drawn up by practical superintendents, principals, and teachers is built upon their working hypothesis and not upon survey-ascertained facts. There never has been such a survey made; we have not yet the technique for making it."[2]

AGREEMENT OF EDUCATORS AND GEOGRAPHERS ON THE CIVIC OBJECTIVES OF GEOGRAPHY

There is a working hypothesis as to the good citizen's functions acceptable to both the educational expert and the specialist in geography. Educators, school superintendents and geography teachers can meet on common ground in the formulation of the civic objectives of geography.

What is it that is being urged upon us today as a preparation for citizenship? One educator has pointed out that it is the study which Thomas Jefferson had in mind when he said, "The purpose of public education ought to be to inform us what is going on in the world now and to give us a desire to make our part of it go right." We have then two ideas—the idea of information and the idea of the use of it; the idea of intelligence and the idea of desiring to use that intelligence for the common good.

All social science material should aim not only at giving information but it should be directed toward the development of right attitudes, appreciations and ideals. The attitudes we wish to develop will determine the choice of materials in our geographic work. If geography is to make its contribution to that one large

[2]F. Bobbitt, How to Make a Curriculum, p. 100. Houghton Mifflin, 1924

composite objective of education—good citizenship—it must help prepare people to intelligently participate in social, economic and political life as it is today and it must seek to fit them to be constructively critical of existing social organizations so they may meet the demands of a rapidly changing society. It must aim at a formulation of geographic principles which will be of value in analyzing and considering economic, political and other social problems: principles governing the location and growth of cities; principles governing the temperature of regions; principles of rainfall; principles of crop production; principles governing the fixing of the level of the standard of living; principles governing the location of manufacturing plants; principles of soil formation; principles governing the location of trade routes, and whatever others are needed for the continuing orientation of the pupils. One of the objectives in geography instruction is to have pupils master sets of geographic principles thru using them.

Let us suppose, for example, that a current question such as immigration is up for discussion. The question is probably one of rather temporary interest and what we should try to do is not only to satisfy the present interest and present needs for knowledge on the part of the pupil, but in addition we should aim to place at his disposal a group of principles which will be of permanent value. So a vital question to every geography teacher is, What shall we do, not only to satisfy the needs of the child as they express themselves in the solution of problems, but also to make the solution of problems a means of placing the student in possession of principles which can be utilized in the solving of future problems that he may meet outside of school life?

If effective thinking is to take place at any time, whether it be at the level of the elementary school, in the high school, or in adult life, it is essential that a body of principles be well codified and systematized, for only in so far as a thoroly complete organization of principles has taken place will one's knowledge be available for future use.

Surely in teaching any subject one should ask one's self will this give training in effective moral conduct functioning in life. So far as the subject of geography is related to this question, one might say that effective moral conduct depends on an appreciation of environment and its relations to social interests. A citizen is called upon to take a certain stand on international problems, for

example, one hears that Germany will be unable to pay a large indemnity because it has been robbed of its farming lands and mineral resources. Unless we know geographic conditions we cannot intelligently decide whether or not this is true. What should be our attitude toward immigration laws? Why should we seek to discourage or prevent more immigrants from southern Europe? What factors enter into such international problems as the Asiatic situation and the various situations in which we find ourselves in relation to our Pan-American neighbors? These are but typical of numerous present day problems both national and international in character that require a knowledge of geography at every step in any intelligent discussion or solution of them.

Geography can give to students, as can no other study in the school curriculum, an abiding and effective interest in peoples of the earth, and in their relationships, problems, advantages, responsibilities, services and needs. Its study should so reconstruct one's experiences as to permit one to enter fully and humanly into the activities of men in different regions and different social classes. Its study should lead one to take on a sympathetic attitude toward people in all parts of the earth. It should show the rights earned by each independent group by revealing the service it renders to all other groups. Surely one of the most influential factors in conduct is right relationships due to understanding, and geography can and should give a more intelligent understanding of people—their ideals, problems, limitations, and possibilities—than any other school subject.

We may ordinarily think of the Italian as a fruit vender. Unless we know something of his home life we cannot think of him as anything else, but when acquainted with Italian ideals, policies, literature and home life we see in him something of a human being like ourselves and appreciate him as a brother should. This sense of the brotherhood of man, a sense of human interdependency, common vicissitudes and a common destiny should be one of the outcomes of geography instruction.

To those who cannot travel geography offers a way of gaining thru vicarious experiences something of the breadth of outlook that one would obtain if he were to visit the various parts of the world in company with a well informed traveler. Dr. Bagley, Professor of Education in Columbia University, believes that the gaining of an intelligent acquaintance with other lands and other

peoples thru vicariously living the lives of these people is one of the important objectives of geography. In a recent book of which he is a co-author he says: "It is clear too that, with the development of modern civilization, an appreciative knowledge of other countries and other peoples has become increasingly important, not only to scholars and statesmen, but to all who have a vote and a voice in determining national policies—and under the conditions of modern democracy this means practically everyone. Breadth of outlook and a widened space-horizon become, then, very much more than merely individual advantages. They are essential attributes of the kind of thinking that every intelligent citizen must do if he is to play well his part in the business of self-government."[3]

Specific Objectives of Geography Should Follow a Formulation of its Comprehensive Functions

All that has been said here concerning objectives of geography instruction has doubtless impressed you as being very general and somewhat intangible. But I am not in sympathy with listing or attempting to list specific objectives of geography until we are first clear upon its large and comprehensive functions. Neither am I in agreement with those who maintain that the only effective way in which objectives may be set up is thru numerical processes. There are objectives which arise out of the experiences of life, objectives which are high and true and valid.

Once these higher objectives which derive their value from what we conceive life to be have been recognized, then the problem of listing certain specific objectives can go on. For example, in geography, the objective I have in mind—that of making the individual a citizen of the world—can scarcely be realized unless the learner can be encouraged to build up clear and accurate mental pictures of conditions that exist beyond the narrow confines of his own immediate environment. One of the specific objectives of geography teaching, then, is to make just as meaningful as possible the map symbolism. The realization of this aim should, however, proceed with a clear understanding of what it is all for. Realization of the larger aims will also demand a certain amount of drill on "place" geography, but this should be vitalized by constant reference to the human element.

These specific objectives we may be able to standardize and ex-

[3] W. C. Bagley and J. A. Keith, An Introduction to Teaching, p. 77. Macmillan, 1924

press quantitatively. We must understand, however, that they are but a means of realizing larger aims—objectives that will not be expressed in terms of greater or less ability to read maps, or in better or poorer knowledge of locational geography, but in terms of social relationships and of life's ideals.

The Immeasurable in Geography

We may well raise the question here as to whether or not we can determine by a testing program the extent to which the objectives of geography instruction have been realized? Can the contributions which geography should make be measured?

It is not difficult to test anything in the form of exact information. We can very easily test for a knowledge of location, of facts relative to climatic conditions, products and trade and we can also test for a knowledge of causal relationships. But after the learner has measured up to standardized requirements in these fields he may still be far from having arrived at the goal of geographic instruction. The major contributions which geography should make, those relating to attitudes toward people and interest in economic, political and social problems, are not adequately measured by any tests which have been devised.

The degree to which one's knowledge is used in really meeting and interpreting the problems of life, is so difficult to test that it will probably not be done in this generation. It may be that such a test will never be devised. Leading authorities in the field of educational measurements frankly admit that the social studies constitute the most complex and difficult field of education in which to formulate guiding principles. All that is possible at present is to lay out the objectives in terms of large and comprehensive functions.

May we not as a group of geography teachers grope our way toward an evaluation of our subject in somewhat larger terms than those that have been current in thought and practice. Keeping in mind that geography is a social study may we not substitute as definite a formulation of its objectives as possible for vague attitudes and opinions. Let us do all we can to have our pupils vicariously live the lives of people in various regions; to learn "place geography" by seeing it as a series of places where the human drama is being enacted; to learn surface features, climatic conditions and natural resources by seeing them as the background of human affairs. Keeping in mind that the ulitmate goal of all

our teaching is to make the individual as far as possible a citizen of the world—well informed as to what is going on in the world and imbued with a desire to make his part of it go right. This is not an easy order to fill. All educational experts who are today seriously studying curriculum problems believe that geography has a very substantial place in helping to understand conditions under which people can live together well. With this assurance may we not go forward with faith and enthusiasm even tho the goal of our teaching may loom fairer and farther the nearer we approach to it.

THE PITCH LAKE, TRINIDAD[1]

PRESTON E. JAMES
University of Michigan

After a short voyage across the quiet waters of the Paria Gulf the ship approaches the site of Trinidad's famous Pitch Lake (Fig. 1). A long pier, nearly a third of a mile in length, provides

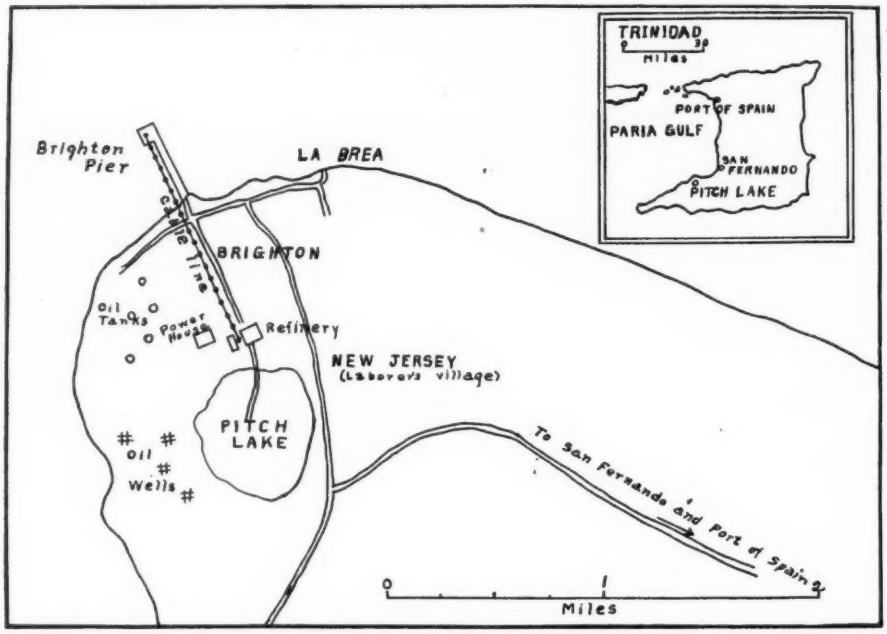

FIG. 1. Sketch Map, showing the Pitch Lake Community. Inset showing the relation of Pitch Lake to the rest of Trinidad.

[1] The writer is indebted to the staff of the Barber Asphalt Co. at Pitch Lake for a courteous and hospitable reception during his visit.

the only place in this part of the world where large ocean ships can tie up at a dock. Beyond the pier lies the western shore of Trinidad, low, green, sparkling after the showers from the towering cumulus clouds which are constantly forming on the eastern side of the island, and drifting westward over the gulf. Like all tropical islands, Trinidad looks romantic, mysterious, from the deck of the ship. The imagination pictures strange scenes set among the beautiful palms or in the "High Woods." But a closer acquaintance with Trinidad and its people reveals a life very similar to our own: men moved by the same desires, interested in much the same things, influenced by the same trends of thought. To them the tropical setting is common and uninteresting; the regions with long, cold nights, and glistening snowy days appeal to them as the sources of romance and mystery.

FIG. 2. Brighton Pier. The cable line is on the right. The carriers on the right hand cable are going toward the refinery loaded with bundles of barrel staves; on the left each carrier has two barrels of asphalt on the way to the ships. The refinery is on the sky line directly beyond the pier.

PITCH LAKE AND ITS SURROUNDINGS

On one side of the pier at which the ship stops is a Norwegian schooner, unloading bundles of barrel staves, probably from New England (Fig. 2). The bundles are being loaded on carriers attached to an endless cable which runs off toward the land. Soon after the steamer arrives the carriers coming out from the shore will bring these barrels back again, set up and loaded with pitch ready for shipment.[2]

From the land end of the pier the ground rises gently toward

[2] Handbook of Trinidad and Tobago. Government Printing Office, Port of Spain, Trinidad, B.W.I. 1924. p. 63

the south. A long asphalt paved road climbs in the direction of a group of buildings in the distance; and on either side of the road neat, white painted houses are set out, the homes and offices of the asphalt company staff. The slope of the hill is covered by a closely cropped grass which would be the pride of many a landscape gardener in this country. The buildings at the end of the road are located on the crest of a hill, several hundred feet above the water. They are the power house, machine shop, and refinery. In the latter the crude asphalt from the lake is heated in large stills until the water and other impurities are largely driven off. Then the asphalt is poured into wooden barrels, and is ready

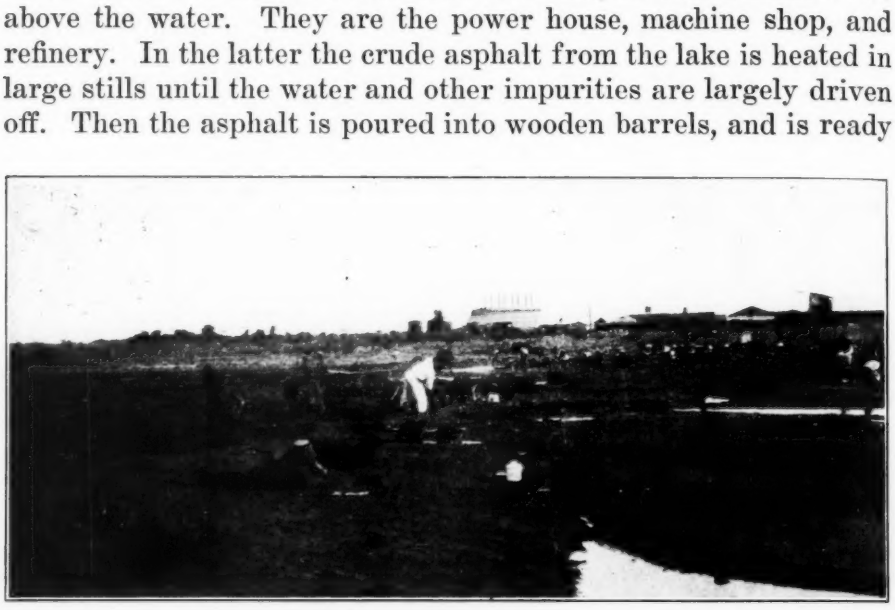

FIG. 3. Cutting out the asphalt from the Pitch Lake. Note the stumps of trees which have been found embedded in the lake. Chunks of asphalt are loaded on cars and carried to the refinery in the background where the material is prepared for shipment.

to begin its journey. The refined asphalt costs less to ship than in the crude form, due to the elimination of waste materials, and is easier to handle in the ships' holds in barrels than in bulk.

Beyond the refinery lies the Pitch Lake, occupying a broad depression, and about 115 acres in extent. At first sight it is certainly disappointing: just an expanse of black pitch, dotted here and there with gangs of workmen (Fig. 3), mostly Trinidad Negroes, armed with picks and industriously chopping at the surface. However, this uninteresting looking sight is of unique commercial value. True it is that there are other pitch lakes in the world, such as "La Brea" near Los Angeles for example, but this Trinidad lake and the similar one in Venezuela nearby are the only

large lakes which are today commercially valuable, and they are the world's chief sources of natural asphalt.

The Pitch Lake is associated with an oil field;[3] in fact oil derricks dot the hillside west of the lake (Fig. 4). An oil bearing stratum, arched into a gentle anticline, has suffered erosion along its top, and from the edges the oil has gradually oozed forth. As the oil came near the surface, however, the more volatile substances were evaporated until only the asphalt base was left. Thus the process which the oil refineries carry on artificially in the manufacture of gasolene and other oil products was carried on here in nature very slowly, but on a grand scale.[4]

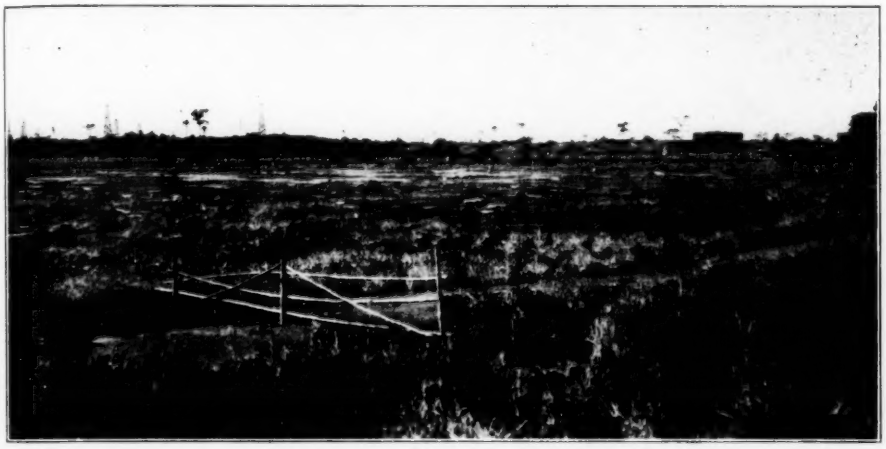

FIG. 4. The Pitch Lake from the southeast edge. Note the oil derricks on the hill west of the lake. Vegetation can be seen spreading onto the surface of the lake wherever it can obtain a foothold.

The whole mass of the lake is in constant complex motion. The surface is composed of a series of low mounds, gently rounded and drawn under at the edges. These mounds are constantly rolling, just as water when it boils rises in spurts and rolls back along the sides. The motion of the Pitch Lake is so slow that it cannot be seen; but sticks of wood, or tools left on the surface are carried under after a day or two, to reappear months or years later in some distant part of the lake. The surface may be walked on without any danger. On a very hot day if one stands for a few minutes in one spot he may sink in an inch or two; but one

[3] F. R. C. Reed, Geology of the British Empire. London. 1921. pp. 180-184

[4] G. P. Wall and J. G. Sawkins, Report of the Geology of Trinidad. London. 1860.

may have that experience on any of our heavily asphalted streets. Drains which are cut to carry off the rain water from the surface, or excavations from which the asphalt is mined fill in again within a day or two. This is due to the fact that the asphalt seeks its own level, just as water does only more slowly; it does not mean at all that the lake is bottomless, or inexhaustable. In the forty years that asphalt has been taken out at the rate of many thousands of tons a year (Table 1), the level has fallen about fifteen feet, just about the volume of the material removed. Several attempts to reach the bottom of the lake by soundings have failed, owing to the drills becoming twisted and broken. Probably the depth is about 200 feet. It is estimated that the supply will last at the present rate of mining at least 400 years.[5]

Some Economic and Geographic Influences

The demand for asphalt became more important in the last quarter of the nineteenth century, altho long before that the pitch was used for caulking boats and other purposes. Sir Walter Raleigh beached his boats at La Brea Village in 1595 and made use of the pitch to repair the leaks which had developed in them.[6] Altho the pitch was superior to that derived from Norway pine for this purpose, its distant location retarded its use in competition with other materials. Not until the use of asphalt for paving was developed did the industry begin to grow rapidly. The first asphalt road in the United States was laid in 1870, and since that time the steady demand for road material, and later for other uses, gave the industry the necessary impetus. The question which interests us as geographers particularly is the consideration of some of the chief geographic conditions under which the industry has had to develop in Trinidad.

Location

One of the critical geographic factors at Pitch Lake is the accessibility of the lake to navigable water. Even in Sir Walter Raleigh's time it was possible to make use of the pitch locally for caulking ships. In the early days of the industry when asphalt was first shipped outside, the short haul by mule cart to La Brea

[5] Henry D. Baker, The Asphalt Lakes of Trinidad and Venezuela. Amer. Consular Bulletin, July, 1923. p. 195

[6] Charles Kingsley, At Last, A Christmas in the West Indies. London. 1885. p. 70

Village was a very small part of the total cost of digging and shipment to New York (40¢ out of $10.25 in 1892).[7] Furthermore, the calm waters of the Paria Gulf provided a safe anchorage for ships, and later made feasible the construction of an unprotected pier and a short cable line leading from the refinery directly to the ships. The relative ease of access of the Trinidad as compared with the Venezuelan lake has resulted in the earlier development of the Trinidad one. This factor distinctly favors the industry.

On the other hand, Trinidad is isolated in relation to the world's major consuming regions. Trinidad's location does not make it a natural focus point for sailing routes, excepting for the relatively unimportant routes to the Orinoco Llanos. This factor retarded the development of the asphalt industry until the demand was able to overcome the obstacle. No other large deposit of natural asphalt is similarly available; and the uniform quality of the Trinidad lake gives it a prestige on the market which competes successfully with the product of the petroleum refineries.

Once the geographic factor of isolated location was overcome by the creation of sufficient demand, the assurance of a bulky cargo in Trinidad attracted there many ships which before had not touched at the island. Not only do many steamers north bound from South American ports make a regular stop at Trinidad to load asphalt, but also the asphalt cargo serves as the main support for a direct line of steamers between New York, Grenada, Trinidad, and British Guiana. Without the asphalt cargoes probably none of these places would have enjoyed a direct line with New York. This redirection of existing sailing routes, and the creation of new direct ones has resulted in a material reduction of the influence of isolation in Trinidad. The developments at Pitch Lake, and the closer contact with the more active parts of the world is one of the several influences in bringing about the progressive character of the Trinidadians as compared with people living in the more isolated parts of the tropics.

CLIMATE

The tropical rainy climate, and the resulting need for sanitation, is another geographic factor of critical importance. In cold

[7] W. P. Pierce, Asphalt of Trinidad. U. S. Consular Report, No. 145, House Miscellaneous Documents, No. 108, series 3127, October, 1892.

climates little or no attention needs to be paid to sanitation, but the results of neglect of this in hot climates are very serious. In some parts of Trinidad malaria, hookworm, and other diseases which result from the neglect of sanitary measures are common. But the asphalt company, fundamentally because of the large demand for asphalt, has been able to spare no expense in combating these diseases.

The elimination of the fever carrying mosquito is of primary importance. This is accomplished in part by draining off pools of standing water. Formerly the surface of the Pitch Lake itself was interlaced with deep pools of water accumulated there during the showers.[8] Mosquitoes used to breed in multitudes. At the present time large electric pumps are provided to carry off the

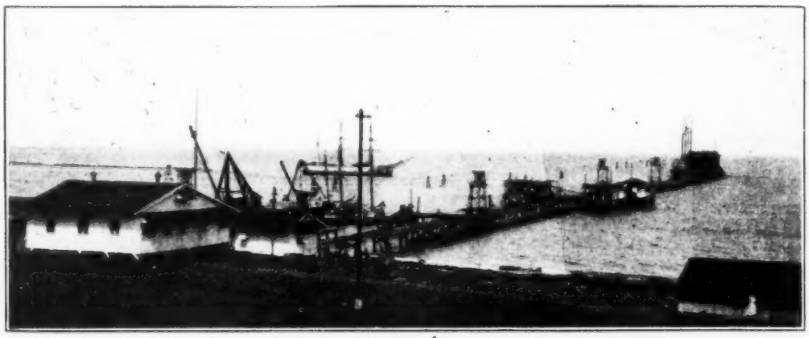

FIG. 5. Brighton Pier, and the asphalt company offices. Note the well kept lawns with which the offices and living quarters are surrounded. This is one of the essential steps in the warfare against the malarial mosquitoes.

water, and drains are cut in the surface of the lake. The roads also are guttered to carry off the rains, and places where standing water cannot be avoided are covered with oil. Furthermore, since tall grass and dense vegetation of any kind provides many resting places for small drops of water, large enough, however,for mosquitoes to breed in, the asphalt company has cut down all such vegetation and surrounds its offices and living quarters with beautifully mowed lawns (Fig. 5). The houses are then carefully screened (Fig. 6); and hospitals and medical service are provided for the prompt treatment of sick or injured workers. By these measures malaria and the other diseases are practically eliminated. However, in using this or other examples of the conquest

[8] W. O. Crosby, Notes on the Physical Geography and Geology of Trinidad. Proc. of the Boston Soc. of Nat. Hist., Vol. 20, 1878. pp. 44-55

of tropical diseases, the expense of such measures must be kept in mind, for in most parts of the tropics, as, for example, on the Trinidad cacao and coconut plantations, the income is not sufficient to justify expensive sanitation.

A visit to Pitch Lake serves to cast serious doubts on the universal application of some of the other supposed influences of a tropical rainy climate. Is it true that white men must necessarily degenerate with long exposure to such a climate, and that these regions are therefore not open to permanent white colonization? Certainly many of the asphalt staff, working long hours exposed to the sun are not the enervated physical wrecks which some writers have pictured. Many of the office workers are native

FIG. 6. New Jersey, where the asphalt company has recently provided homes for the laborers. Developments of this kind in tropical countries can only be undertaken by companies with very substantial incomes.

Trinidad whites, born in Trinidad of Trinidad parents; yet evidences of a loss of vitality in these men would be difficult to demonstrate. For several reasons these Trinidadians have proved to be more efficient than men brought in from the north; perhaps largely because the further a man is from his home, the less he feels a sense of responsibility. On the basis of this and other examples the question might well be raised whether the supposed influences of tropical rainy climates in most cases are not the result of isolation rather than climate. The picture of the white man in these regions, a physical wreck, morally broken, constantly turning to alcohol for stimulation, and regenerated only by a return to colder climates may apply to some isolated parts of the world, perhaps in the tropics, perhaps in mountain mining camps, or in parts of Alaska; but the picture in Trinidad is essentially wrong.

EXPORT OF ASPHALT FROM TRINIDAD

Year	Export in tons	Year	Export in tons
1880	22,927	1914	126,453
1885	35,236	1915	113,645
1890	78,842	1916	106,744
1895	86,148	1917	109,890
1900	158,752	1918	56,799
1905	128,612	1919	66,574
1910	159,309[9]	1920	113,697
1912	176,077	1921	92,324
1913	206,416	1922	153,300[10]

[9] Statistical Abstract for the British Colonies

[10] Correspondence with the Barber Asphalt Co. Philadelphia, Pa.

A TYPICAL FARM IN THE CORN BELT: A PROJECT

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THE SITUATION

We were studying the United States by choosing certain physical regions and carefully selecting problems for each region, the solution of which we thought would lead to an understanding of:

1. The general character of the region, physiographic and climatic

2. The life in the region—plant and animal, and human activities—together with the physical and climatic factors that helped to determine this life

3. A more detailed study of some one or two outstanding industries especially prominent in the region

Occasionally the procedure was reversed, and we began with an outstanding industry as an item of interest for the approach to the comprehensive study of the region. From this study we developed laws and principles governing the industry, and these principles were later applied to other regions having similar conditions.

In the study of the Mississippi Valley we chose to emphasize the life of the farmer, then proceeded on the industrial plan mentioned above.

THE TEACHER'S OBJECTIVES

1. To become familiar with the agricultural products of world-wide importance that are raised in the Mississippi Valley
2. To learn of our weather, and how climate determines agriculture
3. To learn about the life of a farmer in the middle west, his products, and his by-products of hogs and cattle
4. To learn how the farmer is related to the commercial and industrial centers (cities)

THE TEACHER'S PROBLEM

The teacher's problem was to get the class interested in the region, and to enter whole-heartedly into some undertaking that would raise problems, the study of which would lead to the accomplishment of the purposes, or educational aims.

THE APPROACH

A few pictures were shown of farms—farm scenes in France, in South Africa, in the Mississippi Valley, in Russia and in Argentina. These were carefully selected so that the scenes in the Mississippi Valley would be most favorable from an agricultural point of view.

The pictures were briefly discussed from the standpoint of machinery, and the general prosperity and social condition of the people. The question was then asked, "If we wished to study agriculture as an industry in geography, in what part of the world could we get the best illustrations and data for modern methods?"

Questions then arose concerning a typical farm in the Mississippi Valley and what it contained. What buildings were there; what conveniences? What are the characteristics of a good farm? What should be the equipment of a good farm?

THE PUPIL'S AIM

This gave the teacher the opportunity to ask the class if they would care to construct in miniature, an ideal farm on the floor of the class room. (A space about eight feet square was available.) This met with hearty approval and thus became the motive, or aim of the class.

THE PROCEDURE

The pupils' procedure was psychological, and the problems and topics arose naturally thru the carrying out of their project.

Planning the farm with its fields, barn lot, yard and buildings could not proceed without knowing what the farm produced, hence the question:

1. What does a farmer in the Mississippi Valley raise?

The class investigated, and produced a list of farm products of the Mississippi Valley. Of course no farmer could raise all of these, and some were of greater importance than others, so the next question was: Which are the big, world-wide, important crops? Investigation showed that wheat, corn, and cotton were the most important for this region of the United States, and hence most of the farmers would be giving special attention to one or the other of these three crops. The next problem was:

2. What determines whether a farmer in the Mississippi Valley raises wheat, corn, or cotton?

The answer to this problem demanded an investigation of the character of the plants with a view of determining their requirements. This in turn raised questions relative to weather, to rainfall, causes of rainfall, high and low pressure areas. The class kept weather records, and some members constructed a barometer. They studied weather maps and interpreted the lines and symbols on it. They became familiar with cyclones and anti-cyclones. Principles governing weather and rainfall were learned.

Maps and records were also consulted to determine temperatures for different portions of the Valley.

Knowing the requirements of corn, of wheat, and of cotton with regard to these items of weather, the class was ready to map the probable Corn Belt, Wheat Belt, and Cotton Belt of the Mississippi Valley.

The discussion of Problem 2 also involved questions of labor. Perhaps one of these crops required more labor than the others, and this might be a factor in determining which ones the farmer stressed, so the class discussed the labor required in raising these respective crops.

The class now decided that their model farm should be located in the Corn Belt. But as they again began to plan the division of the farm into fields, the following problems arose:

3. What does a farmer in the Corn Belt raise, and how many acres will probably be devoted to each crop?

Why does a farmer in the Corn Belt raise wheat or oats? Clover? Meadow? Pasture?

A farm was visited for the purpose of studying the division into fields, the buildings, the feed lots, the house and barn.

After the trip to the farm, plans were discussed for the model farm. A committee was appointed to draw a detailed plan on paper and also on the blackboard. This plan was drawn to scale, and was used as a guide in the construction of the model farm on the floor. The farm was to consist of 160 acres.

The construction work began. A committee was chosen to construct the barn, sheds, silo and various buildings accessory to the barn. Another group took charge of the construction of the feed lots, feeding racks, etc. Others worked on the house and its surrounding buildings. Still others assumed responsibility of the fences dividing the fields and various enclosures about the barn. Another group attended to the landscape planting about the home site.

Soil was pulverized and dried, and then spread out over paper on the space marked out for the farm. Fences were made of matches and slender string. The posts were stuck in bases of clay to make them stand up. Trees were also planted by sticking them into clay bases sunken into the loose soil. A pond was made by laying a pane of glass over a piece of pale blue paper sunken below the level of the soil. A few trees and bushes grew beside it. There were trees and shrubs and vines about the house. Branches from corn tassels were struck into the soil to represent a corn field. It was the fall of the year, and this simplified the reproduction of field crops. Driveways and walks also were made. In fact, nothing was omitted in the model that is needed on a real farm with the exception of some of the implements and animals. The implements were supposed to be under shelter, and so could not be seen.

The discussion did not end with the construction. Question after question arose, and was answered thru reading and inquiry. The following are some of the main ones.

4. What will the farmer do with his corn? Will he ship his corn and sell it, or will he feed it? What factors will he consider in deciding whether to sell the corn itself, or its by-products of livestock?

What is the market price of corn? of hogs? of fat cattle? How many bushels of corn are required to fatten a two-year-old steer? How many bushels of corn will be fed to a pig in order to make it weigh 300 pounds when about a year old? How long will these animals need to be fed?

5. Where will the farmer get the hogs and cattle that he feeds? Will he find it profitable to keep enough breeding animals to raise all he can feed? Where could he buy cattle that are not fat enough for market until they have been fed corn for a time? What will he need besides corn for feeding?

6. Where will the farmer sell, or ship, his corn, hogs and cattle?

The discussion of problems five and six introduced the subject of the cattle ranch of the "Plains States," the work of the commission man, or cattle buyer, and the stock yards. Questions also arose concerning the number of head of hogs and of cattle that constituted a "car lot"; freight rates on car lots, and how the cattle were cared for on the train.

CORRELATION

Arithmetic, language, and history contributed exercises that helped in the comprehension of the geography problems. The following are a few illustrations:

Arithmetic

1. If it takes 1100 bushels of corn plus 10 tons of alfalfa plus 5 tons of straw to fatten 20 steers, what does it cost the farmer, if corn is 70 cents a bushel, alfalfa $15 a ton, and straw $3 per ton?

2. A farmer bought 68 head of range cattle averaging 650 pounds each, at 4½ cents per pound ($4.50 per hundred). He kept them 120 days during which time he fed them 1050 bushels of corn. When he sold them they weighed on the average 1000 pounds each, and brought $6.85 per hundred. The freight cost him $50 a car for three cars. Corn was worth 65 cents per bushel. What did he make, not counting his labor?

3. If it requires 450 bushels of corn to fatten 70 hogs weighing on an average 200 pounds each, how much does a farmer profit by selling hogs rather than corn if he gets 7 cents per pound for his hogs, and he could have sold the corn at 70 cents a bushel?

History

What references to corn can you find in your United States history? How did the early colonists profit by the Indians' experi-

ence in raising corn? Why were we urged to eat corn bread rather than wheat bread during the World War?

Language

Finally, as an exercise in English as well as for its social value, the members of the class wrote the story of a farmer's day, choosing one of the following titles.

"A Farmer's Day in the Spring"
"A Farmer's Day in the Summer"
"A Farmer's Day in the Autumn"
"A Farmer's Day in the Winter"

These stories were made into booklets with appropriate cover designs. Each story gave in considerable detail the round of activities of a farmer in the Corn Belt, appropriate for a day at that season of the year. The activities began with getting up in the morning and ended with the time of retirement at night. Much originality was shown in some of these stories. Other booklets dealt with, "The History of Corn," "Distribution and Production of Corn."

CITIES

The business transactions of the farmer introduced questions concerning cities, and it was decided to give special attention to these later. This subject was now taken up. The class decided to study their home city—Kansas City in some detail, and then compare other cities in the Mississippi Valley with it. The following outline will indicate the trend of the discusson:

Topic I. Origin of Kansas City

1. What circumstances led to a settlement at the present location of Kansas City?

Early history of the region was consulted, enlarged maps showing details of surface were also studied, and thus reasons for the establishment of an outfitting station for travelers crossing the plains to the Great West were understood.

Topic II. Early History and Development

1. Give reasons for the growth of the village into a city.
2. How did the building of a bridge across the Missouri River at this point affect the Santa Fe Trail? How did it affect the growth of Kansas City?

Topic III. Kansas City as a Commercial Center

1. How are the stock yards and packing houses related to the farmer?

2. How are the grain elevators and flour mills related to the farmer?

3. "The wholesale store is a 'Relay Station.'" Explain.

4. Why should various manufacturing industries spring up in a large city?

5. How does the city newspaper serve the farmer?

6. What are some industries and professions resulting from the local needs of many people assembled into a large city?

(Need for rapid transportation and communication; need for many professions as, physicians, lawyers, educators, police, building trades, etc., etc.)

Topic IV. Other important cities in the Mississippi Valley

1. What are they? Where are they? What is their need? What special reason for their location?

THE STUDY OF ECONOMIC GEOGRAPHY

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To think geographically is to examine the various situations in which one finds himself, with the purpose of discovering the natural environmental factors that give rise to or affect that situation. One who tries thus to orient himself is assisted by this fact, if by no virtue inherent in the inquiry itself: that he achieves a point of view at once so rational and so critical that his analysis, not stopping at the admittedly geographical conditions, proceeds to the other factors of the situation.

Suppose, for example, one is interested in the study of an American city. If one thinks geographically he will first of all attempt to discover the geographical causes of the founding of the city, of its growth, and of the localization there of certain industries and institutions. Obviously, all the geographical factors together will but partially account for the known facts; but it is this very insufficiency that gives the touchstone to the whole problem, by constituting a logical beginning of the process of elimination and summation.

An example of geographical thinking has been indicated which comes within the field of economic geography, that branch of the science of anthropogeography which deals primarily with the way in which the wealth-getting activities of man are limited by factors commonly called geographic, namely, location, climate, relief, access to water, character of soil, and availability of minerals. Economic geography is hard to teach under present circumstances, in spite of the fact that there is widespread interest in the subject matter as well as a wealth of documentary material for its study. The difficulty arises from that colossal ignorance of general geography and of business which marks the student in our secondary schools and colleges.

GEOGRAPHY IN HIGH SCHOOLS

Geography is rarely taught in secondary schools, except in the restricted form of physiography, where it tends to degenerate into a phase of "general science," so that by the time the student enters college, he has as much idea of the world as he may have gained from snatches of the subject in other courses, or, in very rare and fortunate cases, from travel. The case of the social sciences is fully as bad, in most instances. In high school, a considerable period of history has been gone over, with some pains and many notes. Data for social analyses are not lacking, but the analyses are incidental, and seldom if ever proceed to the point of attacking the natural conditions of social activity. The whole curriculum labors thru a mist of academic separation from the scene of action. Some high schools have brief courses in economics, and some even in sociology; but as college freshmen know nothing of these subjects we may conclude that the serum administered, if effective, was immunizing.

The earth, one is told, is "taken for granted" in the high school courses. Perhaps that is why not one of the members of a college class, all of whom were in school in 1917, knew where the Virgin Islands are, to whom they belong, or why they were acquired. Taking the world for granted, in economics or history, is like taking the foundation of a building for granted. If it's not there, it will not construct itself while the building is going up, nor will the latter be entirely satisfactory without it. To many students, the reasons for the world distribution of plants, animals, and humans, are as vague as the theory of relativity. They have,

moreover, so consistently been led to avoid such matters that the brighter ones are skeptical as to the pertinence of such dry facts to a liberal education. It is little wonder, therefore, that even some educators are coming to think that a liberal education, in the usual sense, is one as devoid as possible of contact with the actualities: the "higher" the education, the more remote.

I fancy that urbanization is responsible for this condition, to a degree. City students in city schools, amid surroundings where all natural things have been transformed—as mud into bricks or eggs into omelettes—see man as more or less of a disembodied spirit. Mud is stickier in the country, and hens are there an ever-present annoyance, so neither is likely to remain unnoticed by country children.

OUR LIFE PROFOUNDLY INFLUENCED BY NATURE

The life of man on this planet is, of all things, most interesting, even if one prefer to regard the matter egotistically. Each of us is here, and for reasons so far quite beyond his control, each is obliged to remain here until accident, disease, or old age removes him. Moreover, each of us has to win from nature, periodically, certain things necessary to sustenance (even if one wins with coupons clipped from bonds bequeathed by a more active or more predatory ancestor). To live, one deals with but two factors, man and nature. However complex become the organizations of society in government and industry, that society, that industry, is as bound to the limitations of the terrestrial sphere as each man or woman. Indeed, the more complex the institution, the more points of contact it must have with the cosmos and the more numerous the limitations by geographical factors. A hermit may be quite untouched by many things that beset the path of the globe-trotter: either is free, compared with the condition of slavery to time, place, and the elements, of the group who organize and run a banana plantation in Costa Rica or a cotton mill in Massachusetts.

In these days when isolation, as respects individuals and businesses, is all but broken down by the conquest of time and space by modern methods of transportation and communication, it is not an aphorism but an axiom that the world is a neighborhood. Having lived apart so long, we have developed interesting and annoying diversities of speech and custom. We have not broken

thru the barriers of national, racial, social, and economic prejudice as yet, with much success. It may be observed that propinquity is perhaps as likely to breed intolerance as its opposite. But the problem of dealing with one's neighbor is vital—that of dealing with the Martians is as remote as was the problem of Chinese relations in the Middle Ages. The Chinese, the Japanese, the British Indians, the Georgians, the Muscovites, are now our neighbors. The repercussions of their domestic quarrels sound in our ears, their family brickbats land in our back yards. . . . . And yet, I see a youth of nineteen, with an atlas, hunting around the Baltic for Jugoslavia; while the son of Bohemian parents has become thoroly Americanized, if one may judge by his ignorance of the character and location of Czechoslovakia.

What is to be gained by the study of economic geography? Is it a study to be recommended to all, or to a special group, say students of foreign trade, marketing, geology, or agriculture? Discounting any personal interest in the subject, and disclaiming the point of view that without this we are lost beyond redemption, I shall "content myself with a few observations" as to the pertinence of the principles of economic geography to an understanding of life. In other words, *what useful or fundamental knowledge, what attitude toward social duty, what skill in the interpretation and handling of facts, what clarifying view-points, may be gained from this study?*

All Vocational Groups Affected

Nobody, presumably, will doubt that under the heading of economic geography, even in the narrow sense of commercial, business, or industrial geography, is grouped a set of facts and principles, well established and thoroly documented, relating to the way in which the living of the various vocational classes is dependent upon the earth. To conduct a certain type of agriculture, a location must be found where the soil and climate are favorable, and this place must be situated favorably with respect to communication with the outside world, unless the farmer is to be isolated, in which case a primitive type of economy will always result. On the remote, arid, interior plateaus, where grass is the only important vegetation, agriculture cannot be undertaken without irrigation. Such places are given over to the grazing of flocks, and the pastoral nomad is the prototype.

Similarly, manufacturing classes find favorable conditions where there is water for power, or where coal may be readily obtained. Of prime necessity, obviously, are means of ingress and egress, and the manufacturing cities are in those thickly peopled regions where the totality of physical controls is most favorable to the securing of an abundant living, as well as to the maintenance of good health and consequent energy.

The enumeration of these sets of relationships between industry and nature could be continued. They are inserted merely to show that the student of economics must examine these facts in some detail if he is to form an adequate conception of the phenomena with which he is supposed to deal. No study of any industry is complete without the study of localization, nor can the success or failure of attempts to establish an industry in a particular place be understood without reference to the geographical factors. It is because this fact is realized that many colleges—especially colleges for business training—precede the systematic study of economics with courses in economic geography, often camouflaged under such titles as "economic resources," "commerce and industry," "the geography of commerce," or "business geography." A distinguished actuary has stated that a study of such facts and principles as are set forth in Huntington and Williams' "Business Geography" is a prerequisite to the intelligent discussion of economic problems.

ALL SOCIAL SCIENCES USE GEOGRAPHICAL DATA

There is a close relationship, due to the identity of many of their data, if to nothing else, between economics and sociology. But the latter science, drawing more heavily than the former, usually, upon anthropology, has more use for geographical data. There is the same tendency, however, to regard man apart from his setting, and this neglect is doubtless due to the same limiting sociocentric point of view, to the same lack of familiarity with or regard for the cognate science of geography. The sociologists, however, will not confine themselves to the economic phases, but will rather examine and use the findings of anthropogeography, so far as these are pertinent.

Similarly, the student of history or government is constantly called upon to interpret geographical data, to place the human drama upon its stage of action. The modern historian has attempted this, systematically and in many cases with marked suc-

cess; but much remains to be done—and one cannot help feeling that most elementary and high school teachers of history are unprepared to make this correlation. Probably the compartmenting of knowledge is responsible for this condition, for it is usually true that these teachers, because of training regard geography and history as quite distinct "subjects," whereas there is no excuse for this attitude except for the purposes of classification and specialization.

The teacher of history who is not already familiar with the geographical setting of the subject, will do well to read such books as Semple's "American History and its Geographical Conditions," or Brigham's "Geographical Influence in American History," or, for broader aspects of the subject, Semple's "Influences of Geographical Environment" or Brunhes' "Human Geography." An example of the type of history which takes due account of the geographic relationships is Wells' "Outline of History." No apology is made here for recommending studies outside the field of economic geography, as the student of history requires something more. The special literature of this field is referred to in a later paragraph.

Useful in Business Training

In no field is the need for economic geography more generally recognized, as has been indicated, than in schools for advanced business training, and especially in those emphasizing foreign trade. Their taking up of the subject, or certain aspects of the subject, has led to misunderstanding and prejudice on the part of those concerned with what we are pleased to call "liberal" culture. Some profess to see in economic geography a purely utilitarian and often statistics-crammed study of production figures, distribution areas, marketing methods, and commercial data. They claim that this sort of thing, which uses government publications and the "World Almanac," is not suited to become a part of a liberal education. It is not intended as such—but this is not, of course, economic geography, unless or until a proper account is given of the general facts and broad principles of the science, which must be clearly apprehended and effectively related by a competent teacher with some geographical training.

This is perhaps the point at which to remark that there are few works in the field of economic geography that can profess to be on a level of scholarship with the standard works in other

departments of geography. Such advanced texts as we have are mainly designed for schools of business, for reference, or to meet, in a narrow way, the demands of some limited class. We have, for example, Professor Colby's "Source Book for the Economic Geography of North America," but there is, so far as I am aware, no corresponding text. Without prejudice to other excellent works that may be consulted in any library, I may recommend the study of the following: "Economic Geography," by Whitbeck and Finch; "Business Geography," by Huntington and Williams; and "Commerce and Industry," by J. R. Smith.

The writer believes in first-hand observation. No explanations of the economic and social life of remote people can be derived from books that will be effective substitutes for travel and study abroad. Most persons, however, have neither the skill nor the patience to unravel the intricate threads of such life without the clue furnished by the competent observers and scholars who have preceded them. This is but to repeat a truism, that to get anything from travel one must take something with him. The philosopher Kant, who had never travelled, was more familiar with foreign places than many a leisurely gadabout, as it was his custom to devote a good deal of time to geographical literature. Had he thereafter travelled, what an alembic his powerful mind would have furnished of the experiences for which he had so definitely prepared it! The traveller, on busines or pleasure, who has a sane attitude towards his own limitations, cannot safely neglect to read up—not the frothy literature of travel, nor the guide books, but the accounts of those who have written to interpret the life of different people under other environments.

Economic Geography and Literature

From a consideration of the usefulness of economic geography to students and teachers of the social sciences, and to business men and travellers, one comes naturally to inquire whether the writer and reader of literature should neglect this field. I feel competent only to say "that depends." With many others, I have been bored by endless discussions of the "geography of English literature," so often constituting an itinerary of the meanderings of Wordsworth or Keats. Nature, in all her aspects, has been the theme of poets from time immemorial. Many poets have been more genuinely appreciative of the essential motherhood of nature

than have any other men; and I would not deny that one may live over, more nearly, the moods of Keats and Wordsworth on the ground where they were inspired. But geography, after all, has a very remote relationship to this type of literature.

To the modern writer, however, imbued with the sense of the necessary relationship between literature and life, often a deep student of economics and sociology, economic geography will present many interesting aspects. Perhaps it is not too much to hope that some of these men and women will examine our special literature and point out to us wherein it fails *as literature*. We may confess, for the good of our souls, that the vital spark does not glow as brightly there as we could wish; that too often the standards of composition are shop standards; that the emphasis is often upon the more obvious rather than the more nearly true. Yet we may promise the literary man that he will find a genuine attempt to assist people to an understanding of some of the most fundamental conditions of life. Surely that has some connection with the literary quest!

THE LIBERAL POINT OF VIEW FAVORED

Economic geography, by setting forth the facts of the relationship between economic life and nature, shows man to be largely the creature of environment. If we understand this, we shall not blame people for doing things differently or less efficiently than we. We shall merely recognize the differences as facts. One would not criticize the people of Mars for being adapted to life on another planet. Their life would stimulate our curiosity, but not our animosity. The case appears to be quite different, if instead of the Martians we put the Malays, the Hottentots, or the Caribs: people who have managed to survive under conditions much less favorable than our own regions. If, in addition to a lack of domestic animals and nutritious cereals, we find these people living in an enervating climate, we have gone far to explain the inferior culture of tropical races. If we bear in mind that the north and south temperate zones have conditions favorable for many varieties of plants and animals, and conducive to human energy, we shall be grateful that our ancestors were driven to these parts, and tho we may have "pride of race" we shall not have an attitude of scorn toward those whose lot has been less fortunate.

Moreover, to most of us it would seem a pity to have these differences removed, except in the direction of eliminating disease,

famine, and inter-regional rivalry. Modern science has gone into the tropics, the deserts, the mountains, the swamps, and the arctic tundra, and found ways of subduing nature to the healthful use of man. Eventually our racial differences will be reduced to a minimum, and man will be more and more the master of his environment. But the conquest is one that requires knowledge, linked with patient organization. As we draw more and more upon the former waste places for our sustenance, as the various races are called upon for closer and closer cooperation, it will be imperative that intolerance shall give way to understanding sympathy. If this does not take place, the future belongs to economic imperialism, to the subjection and exploitation of the less aggressive people, with a predictable holocaust. The time to prepare the way of pace is now, and I do not regard it an anticlimax to suggest the study of economic geography as a means of acquiring some of the knowledge and attitudes necessary to the solution of problems of world peace.

THE DEVELOPMENT OF A WORLD PORT: HAMPTON ROADS

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The need for this lesson arose from the ignorance of the students concerning the present conditions in their state and the commercial possibilities of the future.

MATERIALS

Each group was supplied with maps of Virginia and of the world: the Norfolk folio, pilot-charts, pamphlets and pictures furnished by the Norfolk-Portsmouth Chamber of Commerce.

INTRODUCTION

Chesapeake Bay was formed by the drowning of the Susquehanna river system, which has given a body of water about two hundred miles long and about four to forty miles wide. The mouths of the tributaries of the Susquehanna formed many bays and estuary mouths of the Potomac, York, James, and Rappahannock. The land of the coastal plain left to the east became the the Eastern Shore of Virginia and Maryland, while the peninsulas

between the estuaries formed the famous Northern Neck and The Peninsula.

The bay has given rise to the largest oyster beds in the world and has caused the development of the canning and the fishing industry in Maryland and Virginia. Many resorts (Old Point, Willoughby Spit) make recreation another industry. Hampton Roads has always been the pivot about which the naval operations of the United States have turned, while in the World War, this port was used for handling overseas shipments and for the embarkation of troops. The government operates training stations and hospitals, supply depots, and forts covering several thousand acres.

The first permanent English settlement in America was made possible by the protected, quiet water with direct access to the sea, a favorable climate, a productive hinterland for the building of forts, homes, and, later, the cultivation of crops. James River and the numerous inlets aided transportation and settlement along these waterways.

PROBLEM

Why should Hampton Roads be the location of a world port?

Harbor

1. A port depends on the *width* of the harbor. From the scale used on the maps, we determined that the harbor was spacious—there is anchorage for more than three thousand ships.

2. The harbor must be *deep*. There is a forty foot channel to the sea. There is a need for a greater depth near the shore which can be met by the appropriation of $400,000, which has been asked for in order to remedy this condition.

3. Weather records of many years prove that the harbor of Hampton Roads is *free from ice* the entire year, with an average temperature of about 60°F.

4. The *tidal range* is two and a half feet as compared with a four foot range in New York Harbor.

5. The harbor is *protected* by Capes Charles and Henry and being about eighteen miles from the sea has already developed the Norfolk-Portsmouth area. This knowledge was gained from the maps and verified by the pamphlets from the Norfolk Chamber of Commerce.

6. More than 100 wharves and docks are located around this harbor, providing flexible *docking and warehouse facilities* for

every type of ship—41 per cent of these facilities are controlled by the transportation lines. Eight warehouses adjacent to two most modern of piers; handling equipment for 300,000 tons daily, open storage covering fifty acres, terminal trackage of 293 miles, a grain elevator of the most modern type, are all available at the present time.

Hinterland

The location of this harbor gives a direct outlet for the grains, ores, and manufactured products of the Middle West; the tobacco, cotton, and lumber of the South; the oysters, fish and truck products of tidewater; and the lumber and coal of the mountain section.

This port handles five million barrels of oil annually, over 21 million tons of coal, and is the fourth port in cotton.

Transportation

There are already in operation eight lines of railroads making one-third of the United States within twenty-four hours' run, either by freight or fast express. These lines operate twenty-eight covered and five open piers.

There are forty to fifty steamship lines connecting all ports of the world, while there is coastwise service for both freight and passenger trade.

These facilities make this port accessible to twenty million people within twelve hours running time.

Labor

There are 300,000 people within a radius of eighteen miles, both skilled and unskilled.

Markets

There has been an increase of 928 per cent in port commerce in ten years. This port is 300 miles nearer to Europe than is New York, and 180 miles nearer to Europe than Baltimore. Hampton Roads is already the second port in total value of exports.

The needs of South America in manufactured products can be answered from Hampton Roads by a saving of from twenty-four to forty-eight hours in sailing time. Our need for the raw materials from South America can be met by using Hampton Roads as a convenient distributing center for the East, South, and Middle West. The consolidation of the Van Sweringen lines will be a great factor in the distribution of these products.

SUMMARY

A port tends to develop when there is a deep, safe, ice-free, spacious harbor with a vast and varied hinterland which is reached by many facilities for transportation, meeting the ocean trade from almost every foreign country. Labor is already abundant, but it will increase and become more efficient as the demand increases.[1]

[1] The preceding facts are based on the reports of the Norfolk-Portsmouth Chamber of Commerce.

A FORESTRY PROJECT

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A wealth of material presents itself when the subject of forestry is introduced. It is a topic so easily expanded that it quickly becomes an interesting project and one that can be carried on with variations in any grammar grade. This particular one was carried on in a fifth grade in connection with geography.

The last section of the United States which we were to study in detail was the Pacific States group. Just one day's introductory work on California was needed to start the pupils' discussion of the "Big Trees" and the cause of their unusual height.

REFERENCE SOURCES

I had prepared for it and had procured some splendid literature (free) from the State Department at Trenton, also worthwhile material from the Department of the Interior at Washington. These I placed on our library table and any illustrative material was placed on the bulletin board.

Our public library is always an aid to us and from it I obtained about twenty mounted pictures of forest scenes and samples of wood, mounted in book form so that the grain of the wood was the outstanding feature. From a local lumber company, two of the boys procured blocks of wood including cypress, white pine, yellow pine, walnut, and oak. I had stored away some pictures of trees with enlarged pictures of leaves and bark so they were quickly put into use. So much material may sound a bit superfluous but all of it helped us in some particular way.

Aims

When our study of lumbering and forestry in the northwest region was being discussed, one child asked if the class might not study forestry in all sections of the United States. Another wanted to make booklets and soon these aims from the class were forthcoming.

1. To find out the extent (territorially) of the United States' forests.
2. To make a list of all the products which our forests give us (a very interesting phase for discussion and research).
3. To find out in what ways we can protect and care for our trees in our city and to find out how our government cares for them.
4. To find out from poems and stories some of the beauties of the woods.

Our booklets were soon started and attractive covers made. Any pictures or articles found outside of class, pertaining to forestry, were placed in the books. Many samples of wood, procured by the pupils and identified by them were placed in the booklets.

Correlation

Our English, spelling and reading were being constantly correlated. In English we talked about "Life In a Lumber Camp" and we wrote original stories about the hardy lumbermen. Imaginary trips to our national parks were taken and the adventures experienced were told to the class. I might add here that if a project similar to this one could be concluded around Arbor Day, an interesting assembly program could be worked out in connection with the English work.

In spelling, pupils suggested that the following words would be appropriate to learn: sawmill, adventure, splitting, wolves, fibre, hardy, hardships.

In our reading work the pupils looked up suitable poems or stories, and we discussed and memorized Joyce Kilmer's poem "Trees."

Some interesting facts were gathered from one of the pamphlets, viz., the Creoles' use of the sassafras pulp for soup and "gumbo," the French Canadians' use of berries and juices of woods for various dishes, and the pioneers' use of ground nuts with their corn meal.

I had these facts typewritten and each child was given a copy for his booklet. One day's lesson was given in the auditorium, with lantern slides showing lumbering and forestry scenes in all parts of the United States.

As a conclusion to our work the class visited the *Daily Press* office to see the paper as it was being "made." Fortunately we reached the plant just as an evening edition was about to start on its journey. The pupils' enthusiasm was at such a height as they watched the lead plates being made, leveled, placed on the press and automatically operated that it proved quite amusing to onlookers. Of course, a discussion of our trip followed in our English period the following day. The written articles were placed in their booklets.

The project worked out splendidly from start to finish and the interest of the pupils became keener as the work progressed. I certainly feel that every teacher is repaid a thousand-fold when worthwhile work she presents is enthusiastically received.

APRIL PICTURE CONTEST

On the cover of the April number of the *Journal of Geography* appeared an uncaptioned photograph of an Arabian village on the Tigris River. A year's subscription to the *Journal* was promised to the five schools submitting the best title and geographic interpretation of the scene presented. The following schools have been awarded this prize. The teacher's name is given in parentheses.

1. Public School No. 119 (Mrs. L. U. Lawrence), New York City
   Paper prepared by Lucy Youree
2. Washington School (Myrtle McCullough), Muscatine, Ia., Grade 7 A
3. School No. 10 (Anna M. Daley), Elmira, N. Y.
4. Williard Street School (Lola Hemstreet), Jamestown, N. Y.
   Paper prepared by Nancy La Boria, Grade 6 A
5. Olive School (E. Evelyn Flook), Knoxville, Md., Grades 6 and 7

The first picture contest appeared in the November, 1924, number of the *Journal*. Since that issue, marked improvement has been noted in the character of the work submitted for each succeeding contest. Thinking the many readers of the *Journal* would be interested in seeing the type of work done, the following papers are reproduced just as written by the students. The following interpretation was prepared by the 7 A geography class, Washington School, Muscatine, Ia.

A TYPICAL ARABIAN VILLAGE IN SOUTHWESTERN ASIA

QUESTIONS

1. The homes are made of reeds so that the people are protected from the tropical rain and the glaring rays of the hot sun. The people in this country do not need much clothing. The material is light weight and wrapped loosely about them.

2. The material from which the houses are made probably grew near the scene, along the palm bordered banks, or in the swamps and the marshes which abound in this region, because they would pick out a location where this material was abundant, so that they would not have to carry it very far, as a great amount is needed for one house.

3. The solid like structure is probably made of adobe or sun-dried mud. This material is adapted to the climate because it can be easily shaped and the hot sun would bake it until it was sufficiently hardened for use.

4. The natural environment shown in this picture might prove useful in making a living by grazing on the plains near by, weaving of mats and rugs, and the making of pottery.

5. The probable advantage of building a village on the particular site shown, is that plenty of water is near at hand for irrigation, domestic uses, and transportation.

6. This photograph might have been taken in Mesopotamia, on the Tigris or Euphrates Rivers.

This paper was submitted by Lucy Youree of Public School No. 119, New York City.

AN ARABIAN SETTLEMENT ON A MESOPOTAMIA RIVER

I. a) As there is so little rain in this land, and the climate is very hot and dry the homes are made of reed mats so that the air can more easily pass through and they also keep out the intensely hot rays of the sun in summer. There being so little rain they do not need to protect the homes against it.

b) The clothing is thin and loose to protect the people from the heat and sand storms—they need almost no protection against rain.

II. a) Yes, the material probably grew near the scene.

b) As the reeds for the mats of which the houses are made could grow along the river bank which is near at hand.

III. a) The solid tower-like structure is probably made of sun dried clay which is near at hand.

b) This sun dried clay is adapted to this hot, dry climate—because of very little rain and no frost this material will not fall to pieces.

IV. a) The natural environment shown in the picture is the date palm growing along the river (it must have water at its roots and burning sun to produce a good crop of dates) these date palms would prove useful to the people in making a living.

b) They can get food from the river.

c) In this climate they could also raise sheep, goats, wheat and cotton.

V. a) Building a village on this particular site affords the people a means of transportation by river for any excess product not required by the population.

b) It also enables them to get from distant points some material that they wish to use but that their climate does not produce.

c) The river makes it possible for the people to get water for irrigation purposes and to get water for the use of the people and their animals.

VI. This picture might be taken some where on the Euphrates River.

The effective use of pictures is a part of the technique of teaching human relationships to the earth. That this technique is being acquired by geography teachers is evident in the quality of these papers.

CORA P. SLETTEN

GEOGRAPHICAL PUBLICATIONS

William H. Wheeler and Burton Holmes (editors). **Burton Holmes Travel Stories.** Susan Wilbur. **Egypt and the Suez Canal.** 404 pp., 96 full page illustrations, many smaller illustrations and 4 pages of maps. Eunice Tietjens. **Japan, Korea and Formosa.** 404 pp., 66 full page illustrations, many smaller illustrations and 4 pages of maps. Wheeler Publishing Co., Chicago. 1924.

These two volumes contain a wealth of material on Egypt and Japan which is suitable as supplementary reading material for the upper elementary grades and the junior high school. The geography and the historical background of the countries are discussed so vividly and in such an interesting manner that the reader is led to see in a very clear way why it is that the people have developed along the lines which they are following today. The customs of foreign people may seem strange to us, but the people do not appear nearly so queer when studied in the light of their physical and historical environments. Egyptians and Japanese, the same as Americans, have the problem in making a living of adjusting themselves to their natural environments.

The full page illustrations along with many smaller pictures are very clear and well selected. They undoubtedly help to hold the interest of the reader and to make the countries more understandable.

A manual has been written for each book for teachers who may wish to use the books as a source of silent reading material.

Chicago Normal College FREDERICK K. BRANOM

G. W. Hoke. **Lands and Life. Russia and the Old East.** Book One. 364 pp., 45 photos, 15 sketches. Johnson Publishing Co., Richmond, Va. 1924.

This book contains a series of readings on Russia, China, Japan, India, and The Near East. Some of the selections are written by Mr. Hoke, others are adapted from articles by eye-witnesses of the scenes presented. These articles are designed to meet the requirements of an ideal "Silent Reader" as set forth by an eminent authority on reading. Would that the content of the readings had been tested by an eminent authority on geography! As it is, the book is no more of a supplementary geography reader than a supplementary history reader. However, the book purposes to set forth a brief historical and geographical background to which are added brief sketches of the every day social and industrial life of the areas described. Especially interesting are the articles on Palestine, the Trans-Siberian railway, the nature and use of Japan's rivers, and the change of the monsoon. Whenever an unusual word occurs in the text it is marked, and the reader is referred to a nine page word-list of definitions. The work is adapted to the sixth and seventh grades.

State Teachers College, Mankato, Minn. CORA P. SLETTEN

Harold W. Fairbanks. **Europe: New Progressive Geography, Developed According to the Problem Method.** Vol. III. 237 pages, 102 colored illustrations, 2 maps. Harr Wagner Publishing Company, San Francisco, Calif. 1925. $1.65.

This book is one of a series to be published. The author has attempted to present material that will unfold life conditions in Europe. The topical method of treatment has been abandoned. The author stresses the what and the where in relation to the why of geography. An attempt is made to present all the essential facts in relation to vital problems. The facts are not forced into a problem plan, but are introduced because they are necessary in the solution of the problems. The use of many rather than a few problems permits the approach to life conditions from many different angles.

The first part of the book is devoted to a problem discussion of the major natural regions of Europe. The rest of the book is devoted to a problem discussion of the political regions. In the relative emphasis of natural regions and political regions, the author has stressed countries. The natural regions, however, are interwoven into the discussion of countries.

There are one hundred illustrations in color. The pictures are very helpful in depicting life conditions. The book does not contain maps, but the maps needed will be included in a separate atlas.

In addition to the organized problems, which the author has discussed fully, numerous other problems are listed. The pupils thus have an opportunity to follow a master mind in securing training in relational thinking, and also are given training in securing, evaluating, and organizing relevant details of problem solving.

A small part of the book is printed exclusively in capital letters, which add to the difficulty of reading, and detract from the attractiveness of the book. The incorporation of a minimum number of maps would be helpful to those who may wish to use the book without the complete atlas. In many of the problems the author has left too little for the pupils to do.

The book demonstrates the possibility of teaching the details of a region thru interpretations without forcing irrelevant details into a problem discussion, and without supplementing the problems with topical discussions.

Harris Teachers College, M. E. Branom
St. Louis, Mo.

H. B. George. **The Relations of Geography and History.** Fifth Edition. Edited by O. J. R. Howarth. 330 pp. At the Clarendon Press, Oxford. 1924.

In revising this book, Mr. Howarth has made but slight changes in the last (1910) edition by the author. However, Mr. Fawcett has amplified the chapter on America and added a new one on Europe since the Great War. The first general chapters are followed by those dealing with specific countries and regions of Europe, and of India. The chapters headed "Towns," "Sea Power in Peace and War," and "Alpine Passes" are worthy of special note. Mr. George's generalizations are confined largely to the influence of the earth's relief and surface waters on man in his conquests thru wars. With him the word "geography" is synonymous with any or all of the earth's physical features. Thus he writes: "War is altogether based on geography." It is unfortunate that the reviser of the book continues this use of the word geography.

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